

REMARKS

At the outset, Applicants acknowledge with appreciation the withdrawal of the art based rejections.

This application is believed to be in condition for allowance.

Status of the Claims

Claims 5, 6, 9 and 13 were amended for clarity, e.g., as described in the description of Figure 3 on page 5 in view of the analysis of Figure 3 on page 9 lines 16-23, and the analysis of Figure 2 on page 9.

Claims 5, 6, 9, 13-16 and 18-21 remain pending in the application.

Claim Rejections-35 USC §112

Claims 5, 6, 9, 13-16 and 18-21 were rejected under 35 U.S.C. §112, first paragraph, for not complying with the written description requirement. This rejection is respectfully traversed for the reasons below.

The position of the Official Action was that the limitation "a chromium layer..." recited in claims 5, 6, 9 and 13 was not described in the specification, or specifically a structure that comprises a chromium layer and a chromium oxide layer in combination.

The claims recite "a chromium layer which is not oxidized remains between said chromium-oxide passivation film and said metallic material, and said chromium layer remains adhered to the metallic material so that said chromium-oxide passivation film is coupled to said metallic material".

This recitation is most clearly suggested by Figure 2, which illustrates the decreasing oxygen concentration as the depth increases in Figure 2. As discussed in lines 8-10 of page 9, substantially 100% chromium oxide exists from the outermost surface to approximately 30 nm into the depth of the film.

Indeed, as evidenced by the discussion relative to Figure 3, chromium in a form other than oxides of chromium exists in the film portion, or layer, closest to the metallic material. Figure 3 shows the evaluation of the metallic material surface on the corrosion resistance of the chromium oxide passivation film (See, e.g., the first paragraph of page 5). As further explained in the discussion on page 9 lines 16-23, the corrosion occurs when "adhesion of the interface between the metallic material and the chromium-coat film deteriorates". Thus, the test of Figure 3 is for film having a chromium oxide portion, or layer, at the surface to 30nm in the depth and a portion or layer where non-oxidized chromium is present which must adhere to the metallic material in order to avoid corrosion problems.

The paragraph bridging pages 9 and 10 further states that "the chromium-oxide passivation film having corrosion resistance, which is excellent in adhesion of the interface between the metallic material and the chromium-coat film can be formed when the surface roughness (Ra) is not more than 1.5µm."

Thus, claimed "chromium layer" is believed to be supported by the specification, when read in its entirety.

The Official Action also mentioned a technology of chromium layers in combination, i.e., dual layer chromium coating. This technology involves multiple layer coating processes as noted on page 2, lines 20-24. Specifically, this technology involves, in order: (1) covering chromium in a thickness that does not generate a crack, (2) releasing the internal stress through thermal processing (crack prevention), and (3) covering chromium again in a thickness that does not generate a crack. This technology is different from the technology in the present invention.

Therefore, the claims meet the written description requirement, and withdrawal of the rejection is respectfully requested.

Conclusion

In view of the amendment to the claims and the foregoing remarks, applicants believe that the present application is in condition for allowance at the time of the next

Official Action. Allowance and passage to issue on that basis is respectfully requested.

Should there be any matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

The Commissioner is hereby authorized in this, concurrent, and future submissions, to charge any deficiency or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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